Establishing Standards

🌞 Overview

Standard Costing = estimating **manufacturing costs** (Direct Materials, Direct Labor, and Manufacturing Overhead) **in advance** under efficient operating conditions.

Standard Cost = Budgeted Cost = Planned Cost

It represents what costs **should be**, not necessarily what they **will be**, allowing management to control and evaluate performance.

🧮 Key Concepts

Term	Meaning
Standard Input	Quantity of input (e.g., material, labor hours) needed per unit of output
Standard Price	Expected price to pay per unit of input
Standard Cost	Total cost to produce one unit = Σ(Standard Input × Standard Price) + Allocated Overhead

Example:
Direct material standard = 3 lbs × $5/lb = **$15 per unit**

🏭 Role of Standard Costing

- Used to **apply costs to production**.
- Essential for **budgeting and performance evaluation**.
- Enables **variance analysis** (comparing actual vs. standard costs).

📑 Budgets and Standards

Type	Description	Use
Static Budget	Based on planned activity & standard cost per unit	Sets initial cost expectations
Flexible Budget	Adjusted for actual activity level but uses standard cost per unit	Helps analyze efficiency & variance

👉 Variance Analysis compares what **should have happened** vs. **what actually happened**.

⚙️ Setting Standard Costs

Standards must be **realistic and attainable** — neither too strict nor too lenient.
They can be developed using one or more of the following methods:

1️⃣ **Activity Analysis (Most Accurate)**

- Conducted by engineers, accountants, and production workers.
- Specifies:
  - Material type, quantity, and quality
  - Labor skill and efficiency
  - Equipment and process used

2️⃣ **Historical Data**

- Based on past cost performance.
- Easy and inexpensive, but may **continue inefficiencies**.

3️⃣ **Target Costing**

- Starts with **market price** and **desired profit**, then derives **allowable cost**.
- Standards are then set to meet that cost.

4️⃣ **Strategic Decisions**

- Standards reflect management strategies like **Kaizen (continuous improvement)** or new technology.

5️⃣ **Benchmarking**

- Compare with **best industry practices** or top-performing units.
- Adjust for company-specific conditions.

👷 Who Should Set Standards?

Approach	Description	Benefits	Limitations
Authoritative	Top management sets standards	Fast, consistent	Low employee motivation
Participative	Workers and supervisors participate	High acceptance, realistic	May delay decision-making
Consultative	Management decides after employee input	Balanced, practical	Dissatisfaction if ignored

💡 Even in authoritative systems, **employee input** improves accuracy and acceptance.

🧱 Establishing Direct Material Standards

Step	Description
1. Quality Standard	Determines grade of material → affects usage, supervision, time, and waste.
2. Quantity Standard	Based on design specs, equipment, and process conditions.
3. Price Standard	Set last — depends on timing, purchase volume, supplier reliability, etc.

✅ **Departments involved:** Marketing, Engineering, Production, and Accounting.

👮 Establishing Direct Labor Standards

1️⃣ What Determines Labor Standards?

- Type of work performed
- Manufacturing process
- Equipment used
- Skill level required

2️⃣ Components of Direct Labor Standards

Type	Determined By	Explanation
Quantity Standard	Industrial engineers, production, labor union, HR, management accountants	Standard labor hours allowed per unit.
Price Standard (Wage Rate)	HR department	Based on market rates and labor contracts.
Cost Standard	Management accountants	Wages + benefits + payroll taxes (e.g., Social Security, Medicare, etc.).

💡 **Note:** Employee benefits & payroll taxes can either be:

- Included in **Direct Labor**, or
- Treated as **Manufacturing Overhead**.

Usually, the impact on total cost is **minor**, unless labor is a large portion of total cost.

⚙️ Establishing Manufacturing Overhead Standards

1️⃣ What Is Manufacturing Overhead (MOH)?

Indirect manufacturing costs **not directly traceable** to products.

Type	Examples
Indirect Materials	Cleaning supplies, lubricants, tools
Indirect Labor	Supervisors, janitors, maintenance staff
Other Indirect Costs	Depreciation, rent, insurance, utilities

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2️⃣ Classification

Type	Behavior	Examples
Variable Overhead (VOH)	Changes with production volume	Indirect materials, electricity, supplies
Fixed Overhead (FOH)	Constant within a relevant range	Depreciation, factory rent, manager salaries

📌 Fixed and variable overheads are **planned and budgeted separately**.

3️⃣ Predetermined (Standard) Overhead Rate

$$\text{Predetermined OH Rate} = \frac{\text{Budgeted Factory OH Costs}}{\text{Predetermined Activity Level}}$$

Common Activity Bases:

- Direct Labor Hours (DLH)
- Machine Hours (MH)

📓 Steps to Calculate Predetermined OH Rate

Step	Description
1️⃣	Budget total fixed and variable overhead for the year.
2️⃣	Choose allocation base (DLH or MH).
3️⃣	Estimate total standard activity hours.
4️⃣	Divide budgeted overhead by total standard hours → rate per hour.
5️⃣	Multiply rate by allowed hours per unit → overhead per unit.

📊 Example — Variable Overhead

- Budgeted VOH = $150,000
- Planned production = 1,000 units
- Standard hours per unit = 2 DLH

Predetermined Activity Level=1,000×2=2,000DLH\text{Predetermined Activity Level} = 1,000 × 2 = 2,000 DLHPredetermined Activity Level=1,000×2=2,000DLH
Predetermined VOH Rate=150,0002,000=$75 per DLH\text{Predetermined VOH Rate} = \frac{150,000}{2,000} = \$75 \text{ per DLH}Predetermined VOH Rate=2,000150,000=$75 per DLH
VOH per Unit=2×75=$150\text{VOH per Unit} = 2 × 75 = \$150VOH per Unit=2×75=$150

✅ Alternate method:

150,0001,000=$150 per unit\frac{150,000}{1,000} = \$150 \text{ per unit}1,000150,000 =$150 per unit

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🧮 **Example — Fixed Overhead**

- Budgeted FOH = $100,000
- Budgeted units = 10,000

FOH Rate per Unit=100,00010,000=$10\text{FOH Rate per Unit} = \frac{100,000}{10,000} = \$10FOH Rate per Unit=10,000100,000=$10

If production falls to 8,000 units:

FOH per Unit=100,0008,000=$12.50\text{FOH per Unit} = \frac{100,000}{8,000} = \$12.50FOH per Unit=8,000100,000=$12.50

📌 **Lower activity = higher fixed cost per unit**

🔄 **Planning & Allocation Differences**

Overhead Type	Budgeting Method	Rate Basis
Variable OH	Rate per hour × activity	Cost changes with volume
Fixed OH	Total cost ÷ capacity level	Cost per unit changes with volume

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5️⃣ **Denominator-Level (Capacity) Concepts**

Type	Category	Description
Theoretical/Ideal Capacity	Supply-based	Maximum output; assumes no downtime. Unrealistic.
Practical (Attainable) Capacity	Supply-based	Adjusted for normal downtime; realistic.
Master Budget (Expected) Capacity	Demand-based	Based on expected demand — best for budgeting.
Normal Capacity	Demand-based	Average long-term activity — used for GAAP reporting.

💭 **Capacity Usage Summary**

Purpose	Best Capacity Level
External Reporting (GAAP)	Normal capacity
Budgeting & Variance Analysis	Master (expected) capacity

💧 **Key Formula Recap**

Type	Formula
Predetermined OH Rate	= Budgeted OH ÷ Budgeted Activity
VOH per Unit	= Rate × Standard Hours per Unit
FOH per Unit	= Total Fixed OH ÷ Budgeted Units

🧠 **Important Notes**

- Overhead is **applied**, not directly incurred.
- Under **absorption costing**, applied OH becomes part of **inventory cost**.
- OH moves to **COGS** only when goods are sold.
- Maintain **separate standard rates** for variable and fixed overhead.

✅ **Quick Summary Table**

Standard Type	Basis	Determined By	Includes
Direct Material Standard	Quality × Quantity × Price	Engineering, Production, Accounting	Material type, usage, cost
Direct Labor Standard	Hours × Wage Rate	Engineers, HR, Accountants	Wages, benefits, payroll taxes

Standard Type	Basis	Determined By	Includes
Variable Overhead Standard	Budgeted VOH ÷ Activity	Management Accountants	Indirect materials, electricity
Fixed Overhead Standard	Budgeted FOH ÷ Units	Management Accountants	Rent, depreciation, salaries

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💡 **Summary Snapshot**

Concept	Key Point
Purpose	Estimate and control manufacturing costs
Use	Basis for budgeting, cost control, and variance analysis
Best Practice	Use realistic, attainable standards and update regularly
Outcome	Efficient cost management & performance evaluation